19. Senneff MJ, Geltman EM, Bergmann SR. Noninvasive delineation of the effects of moderate aging on myocardial perfusion. *J Nucl Med* 1991;32: 2037–2042.
20. Ficke DC, Beecher DE, Bergmann SR, Hoffman GR, Hood JT, Ter-Pogossian MM. Performance characterization of a whole body PET system designed for dynamic cardiac imaging. *IEEE* 1991;3:1635–1638.
21. Iida H, Kanno S, Miura M, Murakami M, Takahashi K, Uemura K. Error analysis of a quantitative cerebral blood flow measurement using $H_2{}^{15}O$ autoradiography and positron emission tomography, with respect to dispersion of the input function. *J Cereb Blood Flow Metab* 1986;6:536–545.
22. Meyer E. Simultaneous correction for tracer arrival delay and dispersion in CBF measurements by the $H_2{}^{15}O$ autoradiographic method and dynamic PET. *J Nucl Med* 1989;30:1069–1078.
23. Hack S, Eichling JO, Bergmann SR, Sobel BE. External quantification of myocardial perfusion by exponential infusion of positron emitting radionuclides. *J Clin Invest* 1980;66:918–927.

Condensed from
15 Years Ago:

Validity of Left Ventricular Ejection Fractions Measured at Rest and Peak Exercise By Equilibrium Radionuclide Angiography Using Short Acquisition Times

Matthias E. Pfisterer, Donald R. Ricci, Gerhard Schuler, Sue S. Swanson, Donald G. Gordon, Kirk E. Peterson and William L. Ashburn

University of California Medical Center, San Diego, California

To validate ejection fraction (EF) calculations from 5 and 2 min of multiple-gated equilibrium radionuclide angiographic data and to establish its utility during alterations in cardiac performance, we studied 38 patients with chest pain suggestive of coronary artery disease. Twenty-four patients underwent contrast ventriculography (CV) as well as first-pass (FP) and equilibrium (EQ) radionuclide angiography at rest, and 14 additional patients had both radionuclide tests performed at rest as well as during peak supine bicycle exercise. The resting 5-min acquisition ejection fractions were compared between each method and the following correlations were generated: $r = 0.92$, $n = 24$ (CV-EQ), $r = 0.92$, $n = 24$ (CV-FP), and $r = 0.95$, $n = 38$ (FP-EQ). The variability of EQ-EF calculations between two independent observers was < 2%; the mean absolute difference between two sequential 2-min acquisitions and the 5-min recordings was -0.1% ± 1.6%, and the reproducibiltiy of sequential 2-min ejection fractions was excellent ($r = 0.98$). EQ and FP ejection fractions at symptom-limited exercise correlated well ($r = 0.96$, $n = 14$). We conclude that equilibrium radionuclide angiography is a valid method to measure EF both at rest as well as during peak exercise even when 2-min acquisition periods are used.

J Nucl Med 1979; 20:484-490